

**Danger and Warning**  
 The device may only be installed by professionals. Caused any malfunction due to not follow the instructions in this manual. Manufacturers will not bear any responsibility.

**Electric shock, burning and explosion**

- Devices can only be qualified by the staff to install and maintain.
- Before any operation on the Devices, should be isolated from the voltage input and power supply, and the secondary windings of all current transformers are Short circuit.
- Verify that the device is live before operation.
- All mechanical parts and covers should be restored in place before the device is energized.
- Device in use should provide the correct voltage.

*Do not pay attention to these precautions may cause serious injury.*

**1. Outline**  
**1.1 Function introduction**  
 The KPM75 Power Quality Analyzer is designed using advanced microprocessors and digital signal processing technology. The comprehensive three-phase power measurement, display, energy accumulation, power quality analysis, fault alarm, digital input relay output and network communication are integrated. With strong anti-interference ability, it can still work stably in places with serious elect-romagnetic interference.

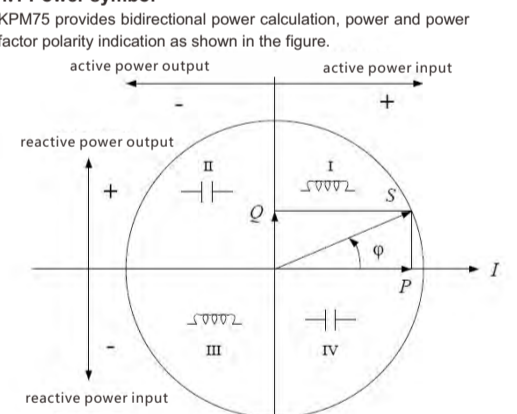
**1.2 Application**  
 Measurement&Monitor energy parameter of distribution system. Collect energy consumption data that cost center analysis needs. Limit monitoring alarm(such as overvoltage, power consumption). Power quality analysis. Green building or DCS system data measurement.

**1.3 Function Features**  
 Measuring three-phase phase/line voltage,three phase current, positive/neg-ative sequence voltage, positive/ negative sequence current,active/reactive power,active/reactive energy,power factor, frequency and other 30 kinds of basicparameters. Measure& show monthly average power factor,accurately grasp the use of monthly reactive power. 0.5S level two-way four-quadrant power statistics and multi-rates statistics.Demand statistic and record the Max. Working time, load time statistics.

Fifty of voltage swells, dips and interruptions can be recorded Support up to 63 harmonic calculation,total harmonic distortion rate calculation, imbalance rate,the current K-factor calculation. Calculation of short-term flicker and long-term flicker values of voltage and extremes of fluctuation Standard 1 channel RS485 interface, Modbus protocol, Scalable Profibus-DP communication module Expandable 4-way DI Expandable 4 -way DO Multi rate electric energy statistics: 4 kinds of rates, 2 sets of time zone tables, 2 sets of time interval tables Expandable 1 -way 4-20mA analog output Expandable 1 -way passive optical coupler collector active pulse output Expandable 1 -way PT100 temperature input. 256 points/cycle voltage,current sampling,high measurement accuracy. 160\*160 lattice large LCD screen,Micro-backlit display,Large viewing angles and in bright light environment is still good visual effect.

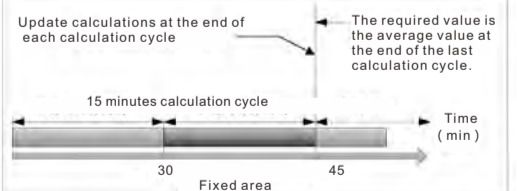
**2. Technical Parameters**  
**2.1 Environmental conditions**  
 Operating temperature: -25°C~70°C  
 Storage temperature: -30°C~75°C  
 Relative humidity: 5% ~ 95% No condensation  
 Altitude :3000 meters below

**4. Function Description**



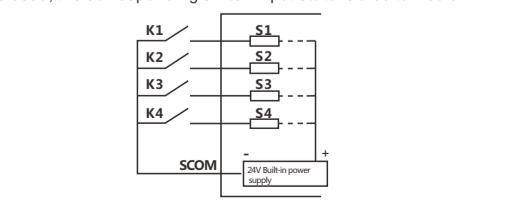
**4.2 Power measurement**  
 The KPM75 Power Quality Analyzer uses an advanced microprocessor and digital signal processing technology. The comprehensive three-phase power measurement, display, energy accumulation, power quality analysis, fault alarm, digital input, relay output and network communication are integrated. With strong anti-interference ability, it can still work stably in places with serious electromagnetic interference.

**4.3 Demand**  
 Power systems often charge fees based on the user's power consumption (in the form of active energy) and the peak power level (in the form of active power). Demand is the average power over a certain time interval. The KPM75 uses a common slip demand algorithm to calculate the demand.



Slip time: time interval for recursive measurement of maximum demand, which can be selected in 1.2.3.5.10.15.30min. Demand cycle: Setting range 1~15 slip times. Max Demand: Max Demand since Operation.

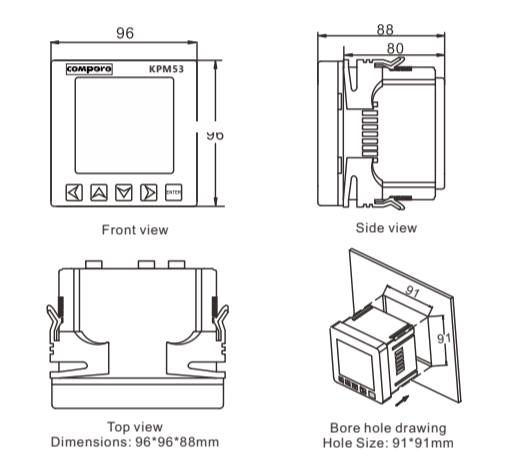
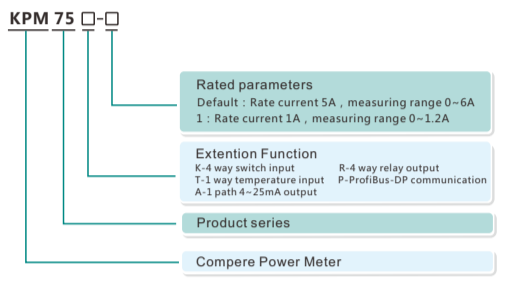
**4.4 Switch input**  
 KPM75 provide 4channel switch input, used to detect the circuit breaker position signal, switch position signal and other status information. DC24V power supply is provided inside the equipment, when the scene requires a binary input function, external access passive contact signal, when the external contact closed, the corresponding switch input state is also turned on.



**2.2 Rated parameters**  
 Device working power supply: AC 85~265VAC , DC 100~30V  
 Rated AC data  
 Phase voltage: 57V/220V/400V  
 AC current: 5A or 1A(Order description)  
 Frequency : 50Hz  
 Switch input : Internal 24VDC DC power supply ,40ms debounce time switch output.  
 Small high power relays :  
 Contact capacity: 250VAC/5A,30VDC/5A  
 Power consumption  
 AC voltage loop: < 0.5VA / phase (rated)  
 AC current loop : < 0.75VA / phase (5A)  
 AC current loop : < 0.25VA / phase (1A)  
 Device power supply circuit: <3VA  
 Overload capacity  
 AC voltage loop :1.2 times the rated voltage,Continuous operation,2 times the rated voltage,Allow 10S  
 AC current loop: 1.2 times the rated voltage,Continuous operation,20 times the rated voltage,Allow 1S

Parameter	Accuracy	Resolution	Parameter	Accuracy	Resolution
Voltage	±0.2%	0.01V	Active energyr	0.2S	0.01KWh
Current	±0.2%	0.01A	Active energy	2%	0.1Kvarh
Active power	±0.5%	0.1W	Frequency energy	0.02%	0.01Hz
Reactive power	±2.0%	0.1var	Temperature	1°C	1°C
Power meter	±1.0%	0.001			

**3. Selection and Installation**

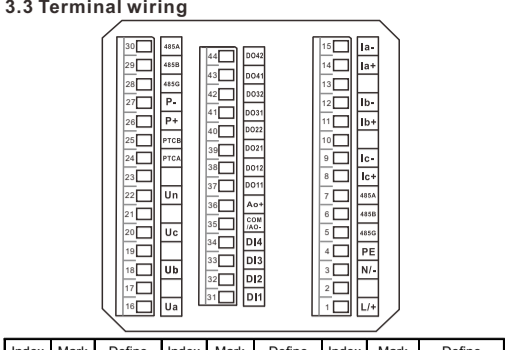
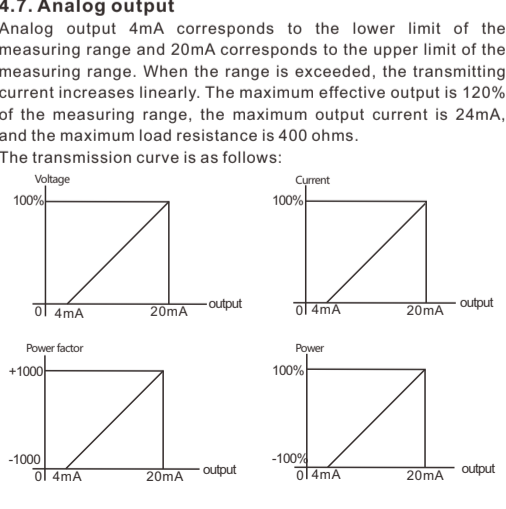


**4.5 Relay output**  
 KPM75 provides two relay actions, the user to identify the relay is in the remotecontrol or control alarm. Different control mode, the relay action mode is different. Remote control: Relay through the communication with the command to control by the PC or PLC. Limit alarm control: The relay is controlled by an electrical parameter inside the meter as a respon-se to a set point control alarm condition. The two relays action mode as follows

Remote control: By accepting a PC or PLC command, relay closes. The relay status will remain on still the PC or the PLC will issue a release command, or the meter power loss. Limit alarm control: When the alarm signal of the trigger relay is generated, relay action.Until the alarm condition of all trigger relays disappears or the meter is out of order,the relay is released. If the meter recovers the power and the alarm condition per-sists, the relay will act again.

**4.6 Pulse**  
 KPM75 provides active/reactive energy metering, 1 active energy pulse out-put function, and adopts optocoupler open collector output. The method of energy accuracy inspection refers to the national measurement. Regulations: standard table of pulse error comparison methods. Electrical characteristics: Open collector voltage VCC ≤ 48V, current Iz ≤ 50mA. Pulse constant: 3200imp/kWh. Its significance is: when the meter accumulates 1kWh, the number of pulse outputs is 3200, and it is necessary to emphasize that the 1kWh is the secondary side energy data of electric energy. In the case of PT and CT, the relative N pulse data corresponds to the primary side power is: N/3200 × voltage transformation ratio × Current ratio(kWh)

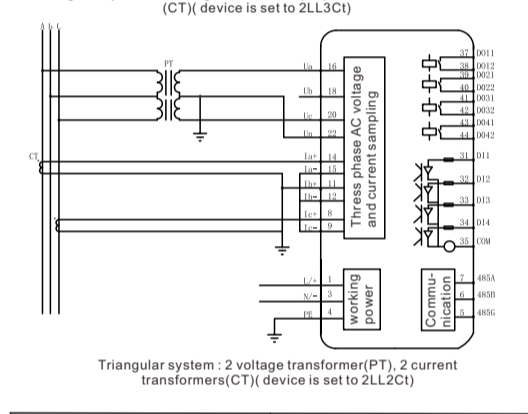
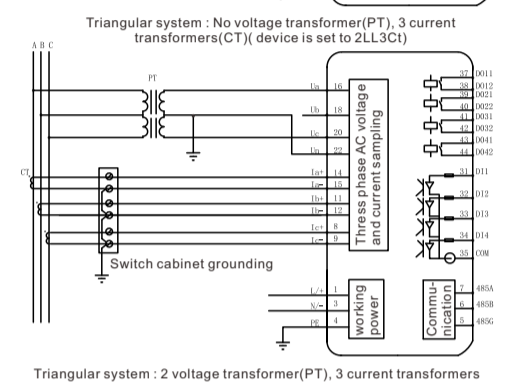
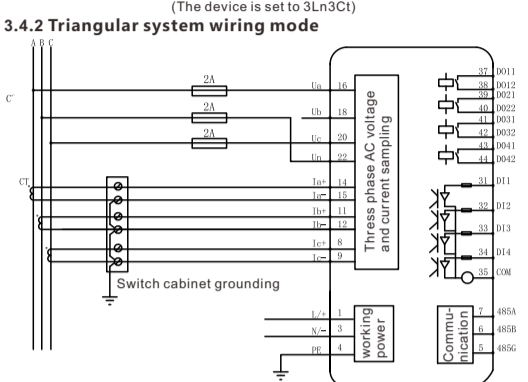
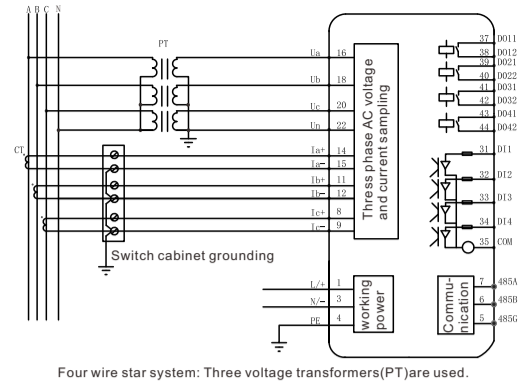
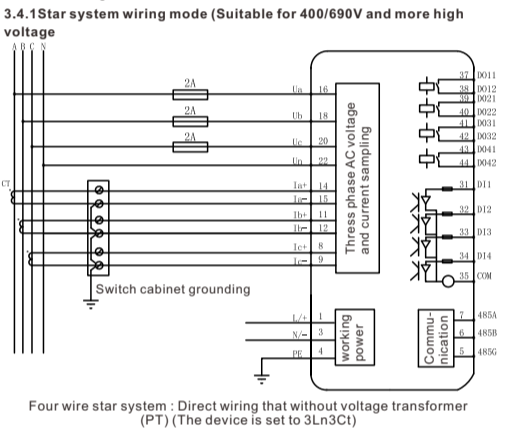
**4.7. Analog output**  
 Analog output 4mA corresponds to the lower limit of the measuring range and 20mA corresponds to the upper limit of the measuring range. When the range is exceeded, the transmitting current increases linearly. The maximum effective output is 120% of the measuring range, the maximum output current is 24mA, and the maximum load resistance is 400 ohms. The transmission curve is as follows:



Index	Mark	Define	Index	Mark	Define	Index	Mark	Define
1	L+	positive	16	Ua	A-phase voltage	31	D11	Switch input 1
2			17			32	D12	Switch input 2
3	N/-	negative	18	Ub	B-phase voltage	33	D13	Switch input 3
4	PE	Ground	19			34	D14	Switch input 4
5	485G	Communication screen ground	20	Uc	C-phase voltage	35	COM AO-	Switch input common port Analog output negative
6	485B	RS485 negative	21					
7	485A	RS485 positive	22	Un+	Neutral voltage	36	AO+	Analog output positive
8	Ic+	C phase current into line	23			37	DO11	Relay output 1 positive
9	Ic-	C phase current outlet	24	PTCA	Temperature input positive	38	DO12	Relay output 1 negative
10			25	PTCB	Temperature input negative	39	DO21	Relay output 2 positive
11	Ib+	B phase current into line	26	P+	Pulse output positive	40	DO22	Relay output 2 negative
12	Ib-	B phase current outlet	27	P-	Pulse output negative	41	DO31	Relay output 3 positive
13			28	485G	Communication screen ground	42	DO32	Relay output 3 negative
14	Ia+	A phase current into line	29	485B	RS485 negative	43	DO41	Relay output 4 positive
15	Ia-	A phase current outlet	30	485A	RS485 positive	44	DO42	Relay output 4 negative

Note: Terminals 5, 6, 7 is standard RS485; Terminals 28, 29, 30 is spare Rs485.

**3.4 Typical wiring**  
 KPM75 provides star system and triangular system wiring mode, the common wiring mode is as follows:



Instruction:  $P=(Px-12) \times PE \times CT \times PT/8$ , Px is actual measured value of the analog, unit: mA, PE is corresponding rated power value, unit: W, the PE values corresponding to different voltage levels are different. Details as follow:  
 220V/5A: Pe=3300W 220V/1A: Pe=660W  
 100V/5A: Pe=1500W 100V/1A: Pe=600W  
 Note: PE=Rated voltage × Rated current when transmitting single-phase power.

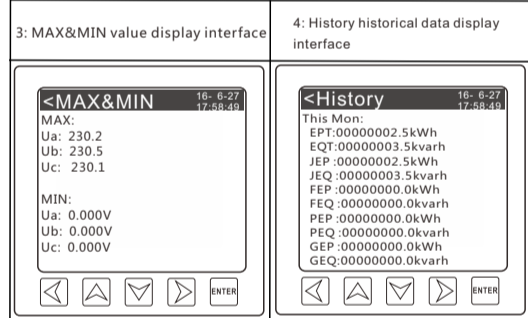
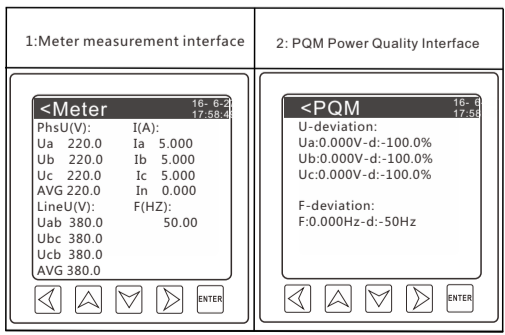
**5. Operating instructions**

**5.1 Operating display**  
 There are five touch keys on the front panel, from left to right the five touch buttons are [Left], [Up], [Down], [Right], [Enter]. The display of different measurement data and the setting of parameters can be realized through the operation of five keys.

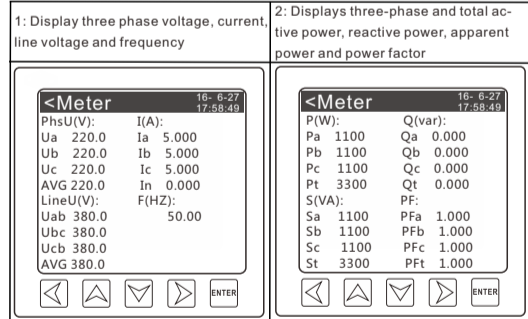


Button name	Functional description
Left button	Switch the three functions display interface: "Meter", "PQM", "MAX&MIN", "History"; use "return" button in parameter setting state.
Up button Down button	In different function display interface, press the up/down button to cycle through all the parameters of the function item; press the up/down button in the parameter setting state to increase/decrease the value of the modified bit, and press the button to reduce the value of the modified bit.
Right button	In the "PQM" power quality display item, press this button to cycle through the demand, harmonics, voltage and current unbalance, etc.; in the parameter setting state, it is used to move the bit to be.
Enter button	Enter programming state; used to enter menu, programming parameters and confirmation in parameter setting state.

The menu of measurement display structure is as follows Press [Enter] key, it will cycle as shown below:



**5.2** In the "Meter" function display item, press [Enter] key to display the realtime measurement data in turn. When the measurement data (excluding energy data) is greater than 9999, the unit of the measured data is displayed before the "k", such as kW; When it is greater than 99999999, "M" is displayed, such as "MW".as the picture shows:



3: Export and import active/reactive energy statistics display. POS: Forward, REV: Reverse, NET: Net, TOT: Total. When the combined value is greater than 99999999.9, the display is no longer refreshed.

